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May 13, 2014

Ms. Tammy Moore - LU-9J
U.S. EPA Region V
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

Re: PCB Groundwater Quality Assessment Program
1st Quarter 2014 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 1st Quarter 2014 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL.

If you have any questions or comments regarding this report, please contact me at (314) 674-3312 or gmrina@eastman.com

Sincerely,

A handwritten signature in blue ink, appearing to read "Gerald M. Rinaldi", is written over a horizontal line.

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

**PCB Groundwater Quality Assessment Program
1st Quarter 2014 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL**

USEPA

Stephanie Linebaugh
USEPA Region 5 - SR6J, 77 West Jackson Boulevard, Chicago, IL 60604

Solutia

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1ST QUARTER 2014
DATA REPORT

PCB GROUNDWATER
QUALITY ASSESSMENT PROGRAM

SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared for
Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

May 2014



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1.0 INTRODUCTION

This report presents the results of the 1st Quarter 2014 (1Q14) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with the Revised PCB Groundwater Quality Assessment Program Work Plan (Solutia 2009). The Site location map is presented in **Figure 1**.

The PCB Groundwater Quality Assessment Program well network consists of ten monitoring wells, as follows (**Figure 2**):

- Two source area wells, PMA-MW-4S and PMA-MW-4D, are screened in the Shallow Hydrogeologic Unit (SHU) (designated with an "S") and Deep Hydrogeologic Unit (DHU) (designated with a "D"), respectively.
- Three well clusters (PMA-MW-1S/M, PMA-MW-2S/M and PMA-MW-3S/M) are located down-gradient of the source area. These clusters include wells screened in the SHU and Middle Hydrogeologic Unit (MHU) (designated with an "M").
- Two individual wells designated PMA-MW-5M and PMA-MW-6D are located further down-gradient of the source area, with PMA-MW-5M screened in the MHU and PMA-MW-6D screened in the DHU.

Groundwater samples were collected from the ten monitoring wells during the 1Q14 sampling event.

Field sampling activities were conducted in accordance with the procedures outlined in the Revised PCB Groundwater Quality Assessment Program Work Plan, including the collection of appropriate quality assurance and quality control (QA/QC) samples. The following section summarizes the field investigative procedures.

2.0 FIELD PROCEDURES

URS Corporation (URS) conducted the 1Q14 PCB Groundwater Quality Assessment Program field activities on January 31 and February 18-21, 2014.

Groundwater Level Measurements – An oil/water interface probe was used to measure depth to static groundwater levels, thickness of non-aqueous phase liquid (NAPL) if present, and total well depth to 0.01 feet in the PCB Groundwater Quality Assessment Program well network. Depth to groundwater measurements were collected from accessible existing wells (i.e., BSA-, CPA-, GM-, K-, PSMW- and PMA-series) and piezometer clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the Revised PCB Groundwater Quality Assessment Program Work Plan.

Well gauging information for the 1Q14 event is presented in **Table 1**. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the MHU and DHU is presented as **Figure 3**.

Groundwater Sampling - Low-flow sampling techniques were used for groundwater sample collection. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate of 400 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

Drawdown was measured periodically throughout purging to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Once the flow rate and drawdown were stable, field measurements were collected approximately every two to three minutes. Purging of a well was considered complete when the following water quality parameters remained stable over three consecutive flow-thru cell volumes:

Parameter	Stabilization Guidelines
Dissolved Oxygen (DO)	+/- 10% or +/-0.2 mg/L, whichever is greatest
Oxidation-Reduction Potential (ORP)	+/- 20 mV
pH	+/- 0.2 units
Specific Conductivity	+/- 3%

Sampling commenced upon completion of purging. Prior to sample collection, the flow-thru cell was bypassed to allow for collection of uncompromised groundwater. Consistent with the work plan, samples were collected at a flow rate less than or equal to the rate at which stabilization was achieved.

Per the workplan, NAPL is to be sampled if present in a well. Because no wells had measurable NAPL, groundwater samples were collected at each well using the procedures described above.

Quality Assurance/Quality Control (QA/QC) samples consisting of analytical duplicates (AD) and equipment blanks (EB) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%, complying with the work plan. All samples were submitted to TestAmerica for PCB analysis.

Each sample was labeled immediately following collection. The sample identification system used for each sample involved the following nomenclature "PMA-MW#-MMYY-QAC" where:

- **PMA-MW#** – Monitoring Well Location (PCB Manufacturing Area (PMA)) and Number
- **MMYY** – Month and year of sampling quarter, e.g.: February (1st Quarter), 2014 (0214)

- **QAC** – denotes QA/QC samples (when applicable):
 - **EB** – equipment blank
 - **AD** – analytical duplicate
 - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

Upon collection and labeling, sample containers were immediately placed inside an iced cooler, packed in such a way as to help prevent breakage and maintain inside temperature at or below approximately 4°C. Field personnel recorded the project identification and number, sample description/location, required analysis, date and time of sample collection, type and matrix of sample, number of sample containers, analysis requested/comments, and sampler signature/date/time, with permanent ink on a chain-of-custody (COC). Coolers were sealed between the lid and sides with a custody seal, and then shipped to TestAmerica in Savannah, Georgia by means of overnight delivery service (FedEx). Field sampling data sheets are included in **Appendix A** and COC forms are included in **Appendix B**.

Field personnel and equipment were decontaminated to ensure the health and safety of those present, maintain sample integrity, and minimize movement of contamination between the work area and off-site locations. Equipment used on-site was decontaminated prior to beginning work, between sampling locations and/or uses, and prior to demobilizing from the site. Non-disposable purging and sampling equipment was decontaminated between each sample acquisition by washing with an Liquinox® or equivalent detergent wash and a distilled water rinse. Personnel and small equipment decontamination was performed at the sample locations. Disposable sampling equipment, such as gloves were collected and bagged on a daily basis and managed in accordance with Solutia procedures. Purge water was containerized and handled per Solutia procedures.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for PCBs using Method 680. For presentation purposes in this report, results of the PCB isomer groups (e.g., monochlorobiphenyl, dichlorobiphenyl, etc.) are summed and presented as “total PCBs.” Laboratory results were provided in electronic and hard copy formats.

4.0 QUALITY ASSURANCE

Analytical data were reviewed for quality and completeness, as described in the Revised PCB Water Quality Assessment Work Plan (Solutia 2009). Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory report. The Quality Assurance report is included as **Appendix C**. The laboratory reports along with the data review reports are included in **Appendix D**.

A total of 13 samples (ten investigative groundwater samples, one field duplicate, and one matrix spike and matrix spike duplicate (MS/MSD) pair) were analyzed by TestAmerica Savannah for PCBs. Additionally, one equipment blank was collected and analyzed by TestAmerica. Results for the various analyses were submitted as sample delivery group (SDGs) KPM054, KPM055, KPM056, and KPM057. The samples contained in each SDG are listed below.

KPM054	
PMA-MW-5M-0214	
KPM055	
PMA-MW-1S-0214	PMA-MW-2M-0214
PMA-MW-1M-0214	PMA-MW-2M-0214-AD
PMA-MW-2S-0214	PMA-MW-6D-0214
PMA-MW-2S-0214-EB	
KPM056	
PMA-MW-3S-0214	PMA-MW-3M-0214
KPM057	
PMA-MW-4S-0214	PMA-MW-4D-0214

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, (USEPA 2008) and the Revised PCB Water Quality Assessment Work Plan (Solutia 2009). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on LCS, surrogate and field duplicate data were achieved for these SDGs to meet the project objectives. Completeness, which is defined to be the percentage of analytical results which are judged to be valid, including estimated (**J/UJ**) data, was 100 percent.

5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 1Q14 PCB Groundwater Quality Assessment sampling event. A summary of the laboratory results is provided in **Table 2** and the entire laboratory data package is provided in **Appendix D**.

Shallow Hydrogeologic Unit

During previous sampling events, measurable DNAPL has been periodically observed in the source area SHU monitoring well PMA-MW-4S (last observed 3Q11). DNAPL was not detected in PMA-MW-4S by the oil/water interface probe during the 1Q14 event. As a result, a water sample was collected, and total PCBs were detected at a concentration of 65.7 µg/L. PCBs were detected in one of three down-gradient PCB Groundwater Quality Assessment Program SHU monitoring well (PMA-MW-3S) at a concentration of 0.48 µg/L. Such data indicate that

PCBs in the SHU are attenuating to a certain extent over the 300 to 400 foot distance between PMA-MW-4S and the three down-gradient SHU monitoring wells. PCB sampling results for the SHU are presented on **Figure 4**.

Middle/Deep Hydrogeologic Unit

Laboratory analytical results for monitoring well PMA-MW-4D, located in the Former PCB Manufacturing Area, indicated an estimated total PCB concentration of 1.5 µg/L for the 1Q14 sampling event. PCBs were also detected in four of the five down-gradient monitoring wells at concentrations of 0.54 µg/L (PMA-MW-1M), 0.72 µg/L (PMA-MW-3M), 0.23 µg/L (PMA-MW-6D), and estimated concentrations of 3.9 and 5.9 µg/L (PMA-MW-2M and duplicate). PCBs were not detected at monitoring well PMA-MW-5M. **Figure 5** displays the 1Q14 PCB sampling results for the MHU/DHU.

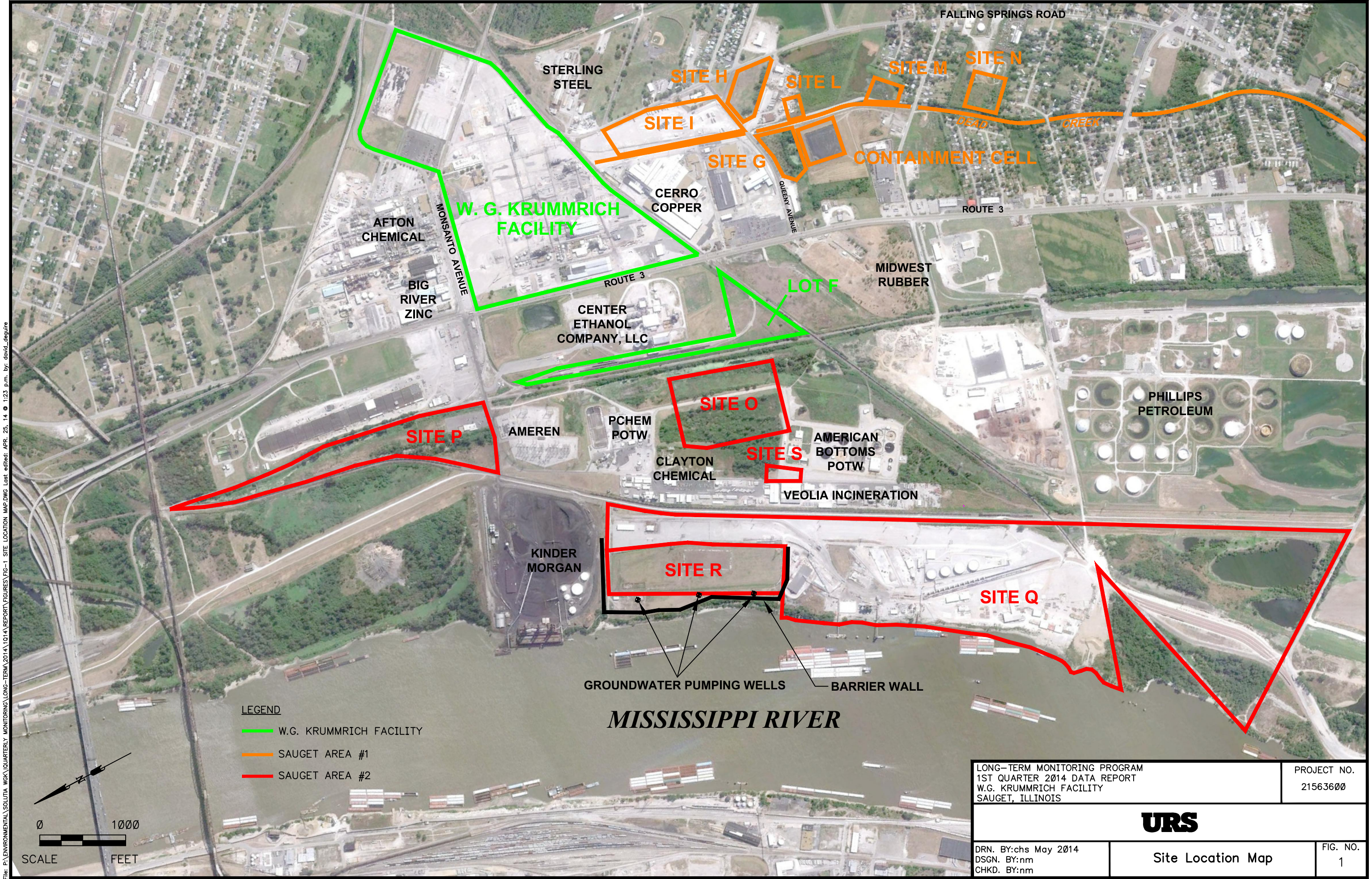
Mann-Kendall trend analyses of total PCBs in unfiltered samples of groundwater from selected monitoring wells within (PMA-MW-4D) or down-gradient of (PMA-MW-1M, -2M, -3S, -3M, and -6D) the former PCB Manufacturing Area are presented in **Table 3**. Similar to previous quarterly events, the data appear to exhibit an upward trend in concentrations at monitoring wells PMA-MW-1M, PMA-MW-2M and PMA-MW-4D. Concentrations exhibit no trends or are stable at monitoring wells PMA-MW-3S and PMA-MW-3M, respectively and the concentration at PMA-MW-6D is likely decreasing.

6.0 REFERENCES

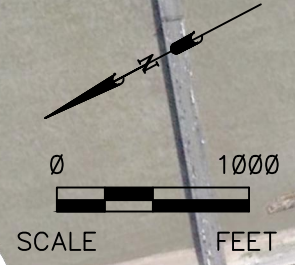
- Solutia Inc, 2009. Revised PCB Groundwater Quality Assessment Program Work Plan, W.G. Krummrich Facility, Sauget, IL, Prepared by URS Corporation, May 2009.
- U.S. Environmental Protection Agency (USEPA), 2008 Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review.

Figures

File: P:\ENVIRONMENTAL\SOLUTIONS\W.G. KRUMMRICH\LONG-TERM MONITORING\FIG-1 SITE LOCATION MAP.DWG Last edited: APR. 25, 14 @ 1:23 p.m. by: david_degure

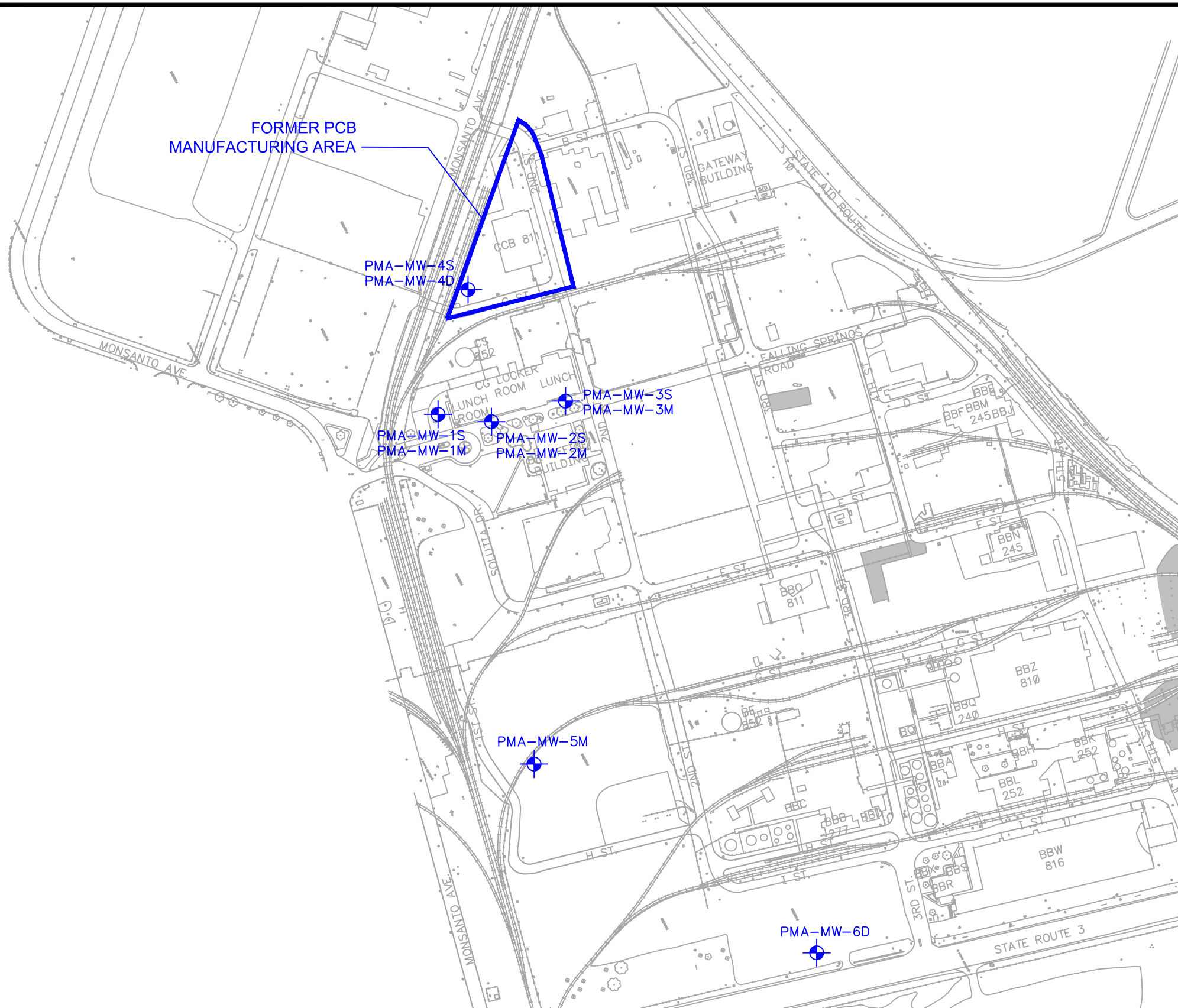


LEGEND
W.G. KRUMMRICH FACILITY
SAUGET AREA #1
SAUGET AREA #2




LONG-TERM MONITORING PROGRAM 1ST QUARTER 2014 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21563600
URS		
DRN. BY:chs May 2014 DSGN. BY:nm CHKD. BY:nm	Site Location Map	FIG. NO. 1

Fig. 1A ENVIRONMENTAL/SOLITA WORKQUARTERS MONITORING PCB 2014 1Q14 REPORT FIGURES FIG-2 FORMER PCB MANUFACTURING AREAS Last edited: APR. 22, 14 @ 4:41 p.m. by: doud, desoute

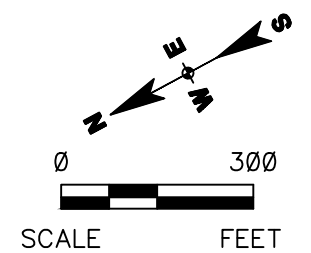


LEGEND

 MONITORING WELL LOCATION

NOTES:

1. REFER TO TABLE 1 FOR MONITORING WELL CONSTRUCTION INFORMATION.



PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 1ST QUARTER 2014 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21563600
URS		
DRN. BY:djd May 2014 DSGN. BY:nm CHKD. BY:nm	Former PCB Manufacturing Area Monitoring Well Locations	FIG. NO. 2

File: P:\ENVIRONMENTAL\SOLUTIONS\WGK\QUARTERLY MONITORING\PCB\2014\1014\REPORT FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 05/02/14 © 10:32 a.m. WC-ST.LOUIS, MO

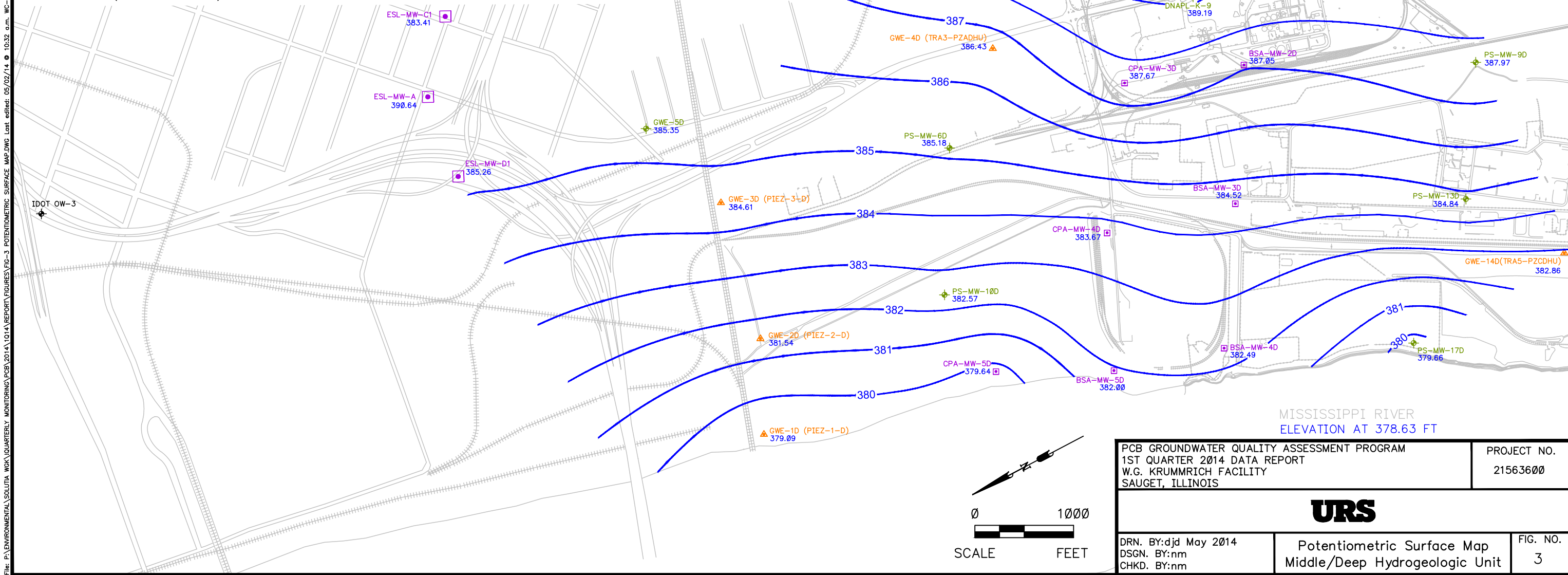
LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- CPA MONITORING WELL USED FOR GROUNDWATER CONTOURING
- IDOT GROUNDWATER WELL

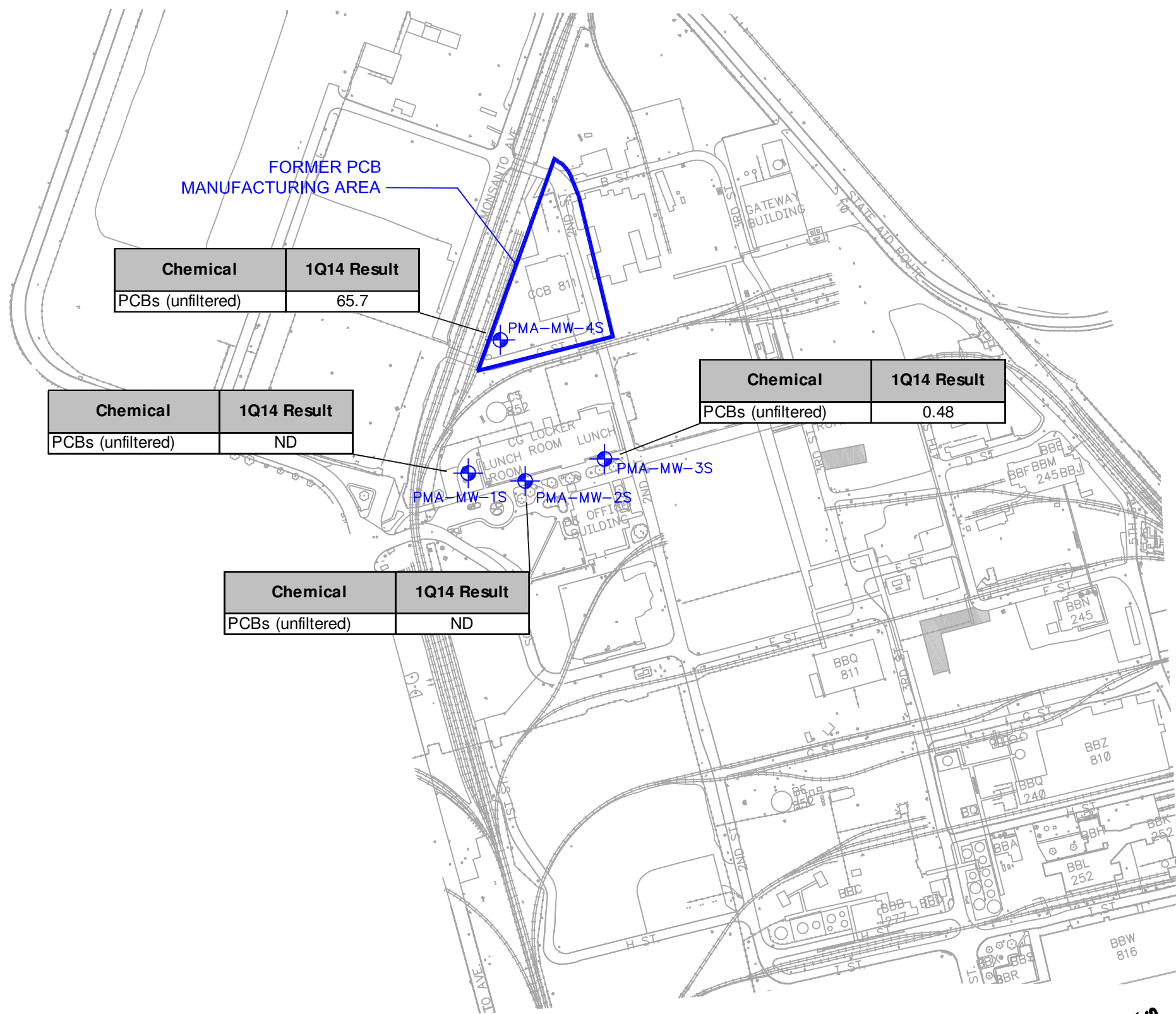
—392— GROUNDWATER ELEVATION CONTOUR (FT NAVD)

NOTES:

- GROUNDWATER LEVELS WERE MEASURED JANUARY 30–31, 2014.
- CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND. SPECIFICALLY, CONTOURS WITHIN THE WGK PLANT AREA WERE SMOOTHED TO CORRECT FOR THE EFFECT OF VERTICAL HYDRAULIC GRADIENTS GIVEN THE DIFFERING WELL SCREEN DEPTHS. ALSO, GROUNDWATER ELEVATIONS RECORDED AT ESL-MW-A AND ESL-MW-C1 ARE INCONSISTENT WITH HISTORICAL READINGS AT THESE LOCATIONS AND WERE NOT USED FOR GROUNDWATER CONTOURING.
- THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE DAYS OF THE GAUGING EVENT. RIVER ELEVATIONS WERE COLLECTED FROM AN ELECTRONIC GAUGE (USGS 07010000) LOCATED AT RIVER MILE 180.0 ON THE EADS BRIDGE.
- LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.
- LOCATION OF WELL IDOT OW-3 BASED ON FIGURE 4 IN DEWATERING WELL ASSESSMENT FOR THE HIGHWAY DRAINAGE SYSTEM AT FOUR SITES IN THE EAST ST. LOUIS AREA, ILLINOIS (FY00–PHASE 17), ILLINOIS STATE WATER SURVEY, CONTRACT REPORT 2003–08.



File: P:\ENVIRONMENTAL\SOLUTIONS\WORK\QUARTERLY MONITORING\PCB\2014\1Q14\REPORT\FIGURES\FIG-4 TOTAL PCBs SHU WELLS.DWG Last edited: APR. 23, 14 @ 10:18 a.m. By: dand_dequire



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 MONITORING WELL LOCATION

NOTES:

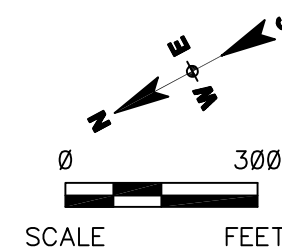
1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND = NOT DETECTED.


Chemical	1Q14 Result
PCBs (unfiltered)	65.7

Chemical	1Q14 Result
PCBs (unfiltered)	ND

Chemical	1Q14 Result
PCBs (unfiltered)	0.48

Chemical	1Q14 Result
PCBs (unfiltered)	ND



PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 1ST QUARTER 2014 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21563600
		
DRN. BY:djd May 2014 DSGN. BY:nm CHKD. BY:nm	PCB Results – SHU Wells	FIG. NO. 4

File: P:\ENVIRONMENTAL\SOUTHA WSK\QUARTERLY MONITORING\PCB\2014\1Q14\REPORT\FIGURES\Fig-5 TOTAL PCBs MHU-DHU WELLS.DWG Last edited: APR. 23, 14 @ 10:22 a.m. by: david_desjardins

LEGEND

 MONITORING WELL LOCATION

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND = NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE.

Chemical	1Q14 Result
PCBs (unfiltered)	1.5

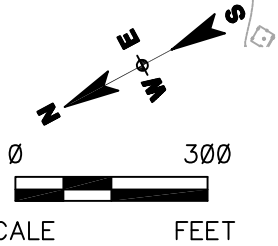
Chemical	1Q14 Result
PCBs (unfiltered)	0.54

Chemical	1Q14 Result
PCBs (unfiltered)	0.72

Chemical	1Q14 Result
PCBs (unfiltered)	3.9 / 5.9

Chemical	1Q14 Result
PCBs (unfiltered)	ND

Chemical	1Q14 Result
PCBs (unfiltered)	0.23



PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
1ST QUARTER 2014 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO.
21563600

URS

DRN. BY:djd May 2014
DSGN. BY:nm
CHKD. BY:nm

PCB Results –
MHU / DHU Wells

FIG. NO.
5

Tables

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						January 30-31, 2014			
	Ground Elevation* (feet)	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	NAPL Thickness (feet)	Depth to Bottom** (feet btoc)	Water Elevation* (feet)
Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)										
PMA-MW-1S	410.30	410.06	20.18	25.18	390.12	385.12	18.03	-	24.93	392.03
PMA-MW-2S	412.27	411.66	22.94	27.94	389.33	384.33	20.75	-	27.36	390.91
PMA-MW-3S	412.37	412.06	22.71	27.71	389.66	384.66	20.72	-	27.40	391.34
PMA-MW-4S	411.09	410.43	20.99	25.99	390.10	385.10	18.53	-	25.38	391.90
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)										
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	18.95	-	59.62	391.13
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	20.99	-	61.29	390.94
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	20.78	-	61.80	391.32
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	20.61	-	57.00	390.36
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	19.98	-	46.03	392.61
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	28.08	-	77.03	387.05
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	31.22	-	114.84	384.52
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	42.20	-	123.22	382.49
BSA-MW-5D	420.80	420.49	115.85	120.85	304.95	299.95	38.49	-	120.99	382.00
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	20.89	-	74.70	391.34
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	19.52	-	104.67	388.68
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	23.00	-	112.85	387.67
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	37.53	-	121.01	383.67
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	33.51	-	114.70	379.64
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	23.06	-	123.20	392.50
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	16.72	-	112.28	391.00
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	24.42	-	123.09	391.49
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	21.68	-	118.35	390.85
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	20.51	-	116.56	391.40
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	19.72	-	116.95	390.37
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	17.83	-	115.38	389.89
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	22.34	-	117.61	389.04

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						January 30-31, 2014			
	Ground Elevation* (feet)	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	NAPL Thickness (feet)	Depth to Bottom** (feet btoc)	Water Elevation* (feet)
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock) (continued)										
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	16.78	-	111.21	389.19
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	21.33	-	120.12	391.92
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	22.18	-	120.30	389.60
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	20.55	-	108.30	390.66
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	36.51	-	128.40	379.09
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	35.60	-	136.69	381.54
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	33.05	-	114.96	384.61
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	19.31	-	78.79	386.43
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	23.03	-	105.20	385.35
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	24.16	-	114.89	388.71
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	40.04	-	97.10	382.86
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	19.34	-	73.30	391.54
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	18.14	-	101.32	389.18
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	21.45	-	109.83	385.18
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	15.55	-	105.16	387.97
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	29.61	-	111.32	382.57
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	20.69	-	110.18	384.84
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	43.60	-	134.04	379.66

Notes:

* - Elevation based upon North American Vertical Datum (NAVD) 88 datum

** - Total depths are measured annually during the first quarter of each year

bgs - below ground surface

btoc - below top of casing

Table 2
Groundwater Analytical Results

Sample ID	Sample Date	Units	Monochlorobiphenyl	Dichlorobiphenyl	Trichlorobiphenyl	Tetrachlorobiphenyl	Pentachlorobiphenyl	Hexachlorobiphenyl	Heptachlorobiphenyl	Octachlorobiphenyl	Nonachlorobiphenyl	Decachlorobiphenyl
Shallow Hydrogeologic Unit												
PMA-MW-1S-0214	2/19/2014	ug/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMA-MW-2S-0214	2/19/2014	ug/L	<0.096	<0.096	<0.096	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMA-MW-3S-0214	2/20/2014	ug/L	0.36	0.12	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMA-MW-4S-0214	2/21/2014	ug/L	1.9	7.4	14	16	8.2	9.2	7.8	1.2	<0.48	<0.48
Middle/Deep Hydrogeologic Unit												
PMA-MW-1M-0214	2/19/2014	ug/L	0.54	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMA-MW-2M-0214	2/19/2014	ug/L	3.9 J	<0.2	<0.2	<0.4	<0.4	<0.4	<0.59	<0.59	<0.99	<0.99
PMA-MW-2M-0214-AD	2/19/2014	ug/L	5.9 J	<0.5	<0.5	<1	<1	<1	<1.5	<1.5	<2.5	<2.5
PMA-MW-3M-0214	2/20/2014	ug/L	0.72	<0.099	<0.099	<0.2	<0.2	<0.2	<0.3	<0.3	<0.49	<0.49
PMA-MW-4D-0214	2/21/2014	ug/L	<0.98	1.5 J	<0.98	<2	<2	<2	<2.9	<2.9	<4.9	<4.9
PMA-MW-5M-0214	2/18/2014	ug/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMA-MW-6D-0214	2/19/2014	ug/L	0.23	<0.1	<0.1	<0.2	<0.2	<0.2	<0.31	<0.31	<0.51	<0.51

Notes:

ug/L = micrograms per liter

< = Result is non-detect, less than the reporting limit given.

BOLD indicates concentration greater than reporting limit.

AD = Analytical Duplicate

J = Estimated value

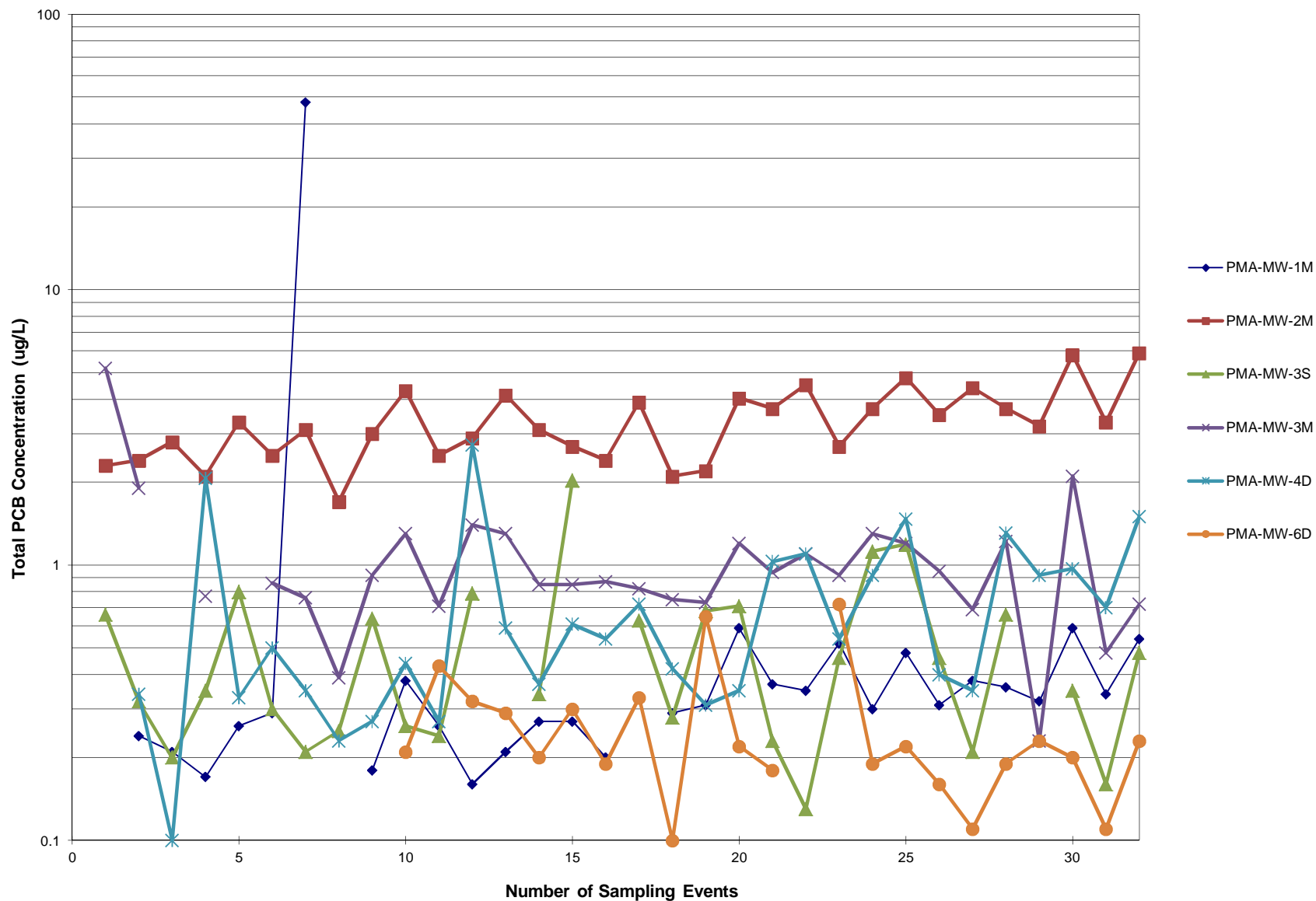
Table 3
Mann-Kendall Trend Analysis

Sampling Event	Quarter	TOTAL PCBs CONCENTRATION (ug/L)					
		PMA-MW-1M	PMA-MW-2M	PMA-MW-3S	PMA-MW-3M	PMA-MW-4D	PMA-MW-6D
1	2Q06	ND	2.3	0.66	5.18	NA	NA
2	3Q06	0.24	2.4	0.32	1.9	0.34	NA
3	4Q06	0.21	2.8	0.2	ND	0.1	NA
4	1Q07	0.17	2.1	0.35	0.77	2.07	NA
5	2Q07	0.26	3.3	0.8	ND	0.33	NA
6	3Q07	0.29	2.5	0.3	0.86	0.5	NA
7	4Q07	48	3.1	0.21	0.76	0.35	NA
8	1Q08	ND	1.7	0.25	0.39	0.23	NA
9	2Q08	0.18	3	0.64	0.92	0.27	NA
10	3Q08	0.38	4.3	0.26	1.3	0.44	0.21
11	4Q08	0.26	2.5	0.24	0.71	0.27	0.43
12	1Q09	0.16	2.9	0.79	1.4	2.73	0.32
13	2Q09	0.21	4.14	ND	1.3	0.59	0.29
14	3Q09	0.27	3.1	0.34	0.85	0.37	0.2
15	4Q09	0.27	2.7	2.03	0.85	0.61	0.3
16	1Q10	0.2	2.4	ND	0.87	0.54	0.19
17	2Q10	ND	3.9	0.63	0.82	0.72	0.33
18	3Q10	0.29	2.1	0.28	0.75	0.42	0.1
19	4Q10	0.31	2.199	0.68	0.73	0.31	0.65
20	1Q11	0.59	4.04	0.71	1.2	0.35	0.22
21	2Q11	0.37	3.7	0.23	0.94	1.03	0.18
22	3Q11	0.35	4.52	0.13	1.1	1.1	ND
23	4Q11	0.52	2.7	0.46	0.92	0.54	0.72
24	1Q12	0.3	3.7	1.12	1.3	0.92	0.19
25	2Q12	0.48	4.79	1.19	1.2	1.47	0.22
26	3Q12	0.31	3.52	0.46	0.95	0.4	0.16
27	4Q12	0.38	4.4	0.21	0.69	0.35	0.11
28	1Q13	0.36	3.7	0.66	1.22	1.31	0.19
29	2Q13	0.32	3.2	ND	0.23	0.92	0.23
30	3Q13	0.59	5.8	0.35	2.1	0.97	0.2
31	4Q13	0.34	3.3	0.16	0.48	0.7	0.11
32	1Q14	0.54	5.9	0.48	0.72	1.5	0.23
Coefficient of Variation:		4.49	0.31	0.77	0.77	0.79	0.60
Mann-Kendall Statistic (S):		183	201	14	-43	171	-56
Confidence in Trend:		>99.9%	>99.9%	59.5%	77.2%	99.8%	93.9%
Concentration Trend:		Increasing	Increasing	No Trend	Stable	Increasing	Prob. Decreasing

Notes:

1. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0).
 > 90% = Probably Increasing or Decreasing; >95% = Increasing or Decreasing
2. Values represent detected values. Values below the detection limit(s) are listed as non-detect (ND).
3. NA = Not Analyzed
4. See page 2 for graphical summary of results

Table 3
Mann-Kendall Trend Analysis



Appendix A

Groundwater Purging and Sampling Forms



Troll 9000
02/19/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 28.44 [ft]
Pump placement from TOC 22.49 [ft]

Well Information:

Well Id PMA-MW-1S
Well diameter 2 [in]
Well total depth 24.95 [ft]
Depth to top of screen 19.94 [ft]
Screen length 60 [in]
Depth to Water 18.92 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 758.57 [mL]
Calculated Sample Rate 114 [sec]
Sample rate 114 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
			+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	10:27:37	63.63	6.85	1189.44	1.60	0.47	112.98
	10:29:30	63.55	6.86	1185.99	0.84	0.50	113.02
	10:31:26	63.56	6.87	1184.80	0.37	0.54	113.11
	10:33:20	63.56	6.88	1183.42	0.41	0.58	113.25
	10:35:14	63.54	6.88	1182.11	0.01	0.62	113.42
Variance in last 3 readings	10:31:26	0.01	0.01	-1.19	-0.47	0.04	0.09
	10:33:20	0.00	0.01	-1.38	0.05	0.04	0.13
	10:35:14	-0.02	0.00	-1.30	-0.40	0.04	0.17

Notes:



Troll 9000
02/19/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 62.8 [ft]
Pump placement from TOC 56.8 [ft]

Well Information:

Well Id PMA-MW-1M
Well diameter 2 [in]
Well total depth 59.65 [ft]
Depth to top of screen 54.3 [ft]
Screen length 60 [in]
Depth to Water 19.49 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 950.14 [mL]
Calculated Sample Rate 143 [sec]
Sample rate 143 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
			+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	11:12:58	62.71	7.00	2064.76	83.55	-0.03	-129.61
	11:15:22	62.86	7.00	2055.00	70.23	-0.03	-131.80
	11:17:46	62.96	7.00	2052.64	3.86	-0.05	-133.57
	11:20:10	62.99	7.00	2050.20	2.58	-0.06	-135.03
	11:22:34	62.95	7.00	2050.59	2.91	-0.06	-136.07
Variance in last 3 readings	11:17:46	0.10	0.00	-2.36	-66.37	-0.02	-1.76
	11:20:10	0.03	0.00	-2.45	-1.28	-0.01	-1.47
	11:22:34	-0.05	0.00	0.39	0.33	0.00	-1.04

Notes:



Troll 9000
02/19/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 30.83 [ft]
Pump placement from TOC 24.83 [ft]

Well Information:

Well Id PMA-MW-2S
Well diameter 2 [in]
Well total depth 27.38 [ft]
Depth to top of screen 22.33 [ft]
Screen length 60 [in]
Depth to Water 21.25 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 771.89 [mL]
Calculated Sample Rate 116 [sec]
Sample rate 116 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	12:26:27	64.77	7.15	1432.08	2.92	0.04	34.98
	12:28:24	64.80	7.15	1417.94	2.70	0.04	37.13
	12:30:22	64.78	7.15	1382.96	2.94	0.04	38.77
	12:32:17	64.83	7.15	1378.38	1.97	0.03	40.62
	12:34:14	64.86	7.15	1384.35	1.33	0.01	42.34
Variance in last 3 readings	12:30:22	-0.02	0.01	-34.98	0.24	0.00	1.64
	12:32:17	0.05	0.00	-4.58	-0.97	-0.01	1.85
	12:34:14	0.03	0.00	5.96	-0.64	-0.01	1.72

Notes:



Troll 9000
02/19/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 65.04 [ft]
Pump placement from TOC 59.14 [ft]

Well Information:

Well Id PMA-MW-2M
Well diameter 2 [in]
Well total depth 61.29 [ft]
Depth to top of screen 56.64 [ft]
Screen length 60 [in]
Depth to Water 21.26 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 962.63 [mL]
Calculated Sample Rate 145 [sec]
Sample rate 145 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	13:06:18	62.46	7.40	2009.38	11.28	-0.02	-131.45
	13:08:44	62.56	7.40	2009.95	1.89	-0.03	-134.40
	13:11:11	62.43	7.39	2012.82	2.04	-0.04	-136.54
	13:13:36	62.42	7.40	2013.47	1.20	-0.05	-138.41
	13:16:02	62.37	7.40	2012.79	2.01	-0.06	-139.91
Variance in last 3 readings	13:11:11	-0.13	0.00	2.87	0.15	-0.02	-2.14
	13:13:36	0.00	0.00	0.65	-0.83	-0.01	-1.88
	13:16:02	-0.05	0.00	-0.68	0.81	-0.01	-1.49

Notes:



Troll 9000
02/20/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 30.9 [ft]
Pump placement from TOC 24.9 [ft]

Well Information:

Well Id PMA-MW-3S
Well diameter 2 [in]
Well total depth 27.41 [ft]
Depth to top of screen 22.4 [ft]
Screen length 60 [in]
Depth to Water 20.98 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 772.28 [mL]
Calculated Sample Rate 116 [sec]
Sample rate 116 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	14:06:28	66.07	7.14	2417.02	5.91	0.09	-27.72
	14:08:25	66.29	7.14	2413.98	3.80	0.10	-21.65
	14:10:23	66.19	7.14	2418.37	2.27	0.11	-15.33
	14:12:19	66.20	7.14	2423.52	1.83	0.12	-9.78
	14:14:16	66.30	7.14	2432.12	1.56	0.12	-5.86
Variance in last 3 readings	14:10:23	-0.10	0.00	4.38	-1.53	0.01	6.32
	14:12:19	0.01	0.00	5.15	-0.44	0.01	5.55
	14:14:16	0.10	0.00	8.60	-0.27	0.00	3.92

Notes:



Troll 9000
02/20/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 65.31 [ft]
Pump placement from TOC 59.31 [ft]

Well Information:

Well Id PMA-MW-3M
Well diameter 2 [in]
Well total depth 61.84 [ft]
Depth to top of screen 56.81 [ft]
Screen length 60 [in]
Depth to Water 20.96 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 964.13 [mL]
Calculated Sample Rate 145 [sec]
Sample rate 145 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
			+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	14:44:50	64.17	9.23	2274.60	10.95	-0.11	-180.79
	14:47:16	64.12	9.23	2279.58	16.01	-0.12	-186.69
	14:49:42	64.09	9.23	2284.24	3.33	-0.13	-190.84
	14:52:09	64.02	9.23	2293.47	2.86	-0.14	-195.50
	14:54:34	64.02	9.24	2301.10	4.06	-0.14	-199.65
Variance in last 3 readings	14:49:42	-0.03	-0.01	4.65	-12.68	-0.01	-4.15
	14:52:09	-0.07	0.01	9.24	-0.47	-0.01	-4.66
	14:54:34	0.00	0.01	7.63	1.19	0.00	-4.15

Notes:



Troll 9000

02/21/14

Low-Flow System

ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 28.83 [ft]
Pump placement from TOC 22.83 [ft]

Well Information:

Well Id PMA-MW-4S
Well diameter 2 [in]
Well total depth 25.35 [ft]
Depth to top of screen 20.33 [ft]
Screen length 60 [in]
Depth to Water 19.83 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 760.74 [mL]
Calculated Sample Rate 115 [sec]
Sample rate 115 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	13:24:41	66.20	6.87	2786.84	12.47	-0.02	-104.55
	13:26:37	66.27	6.88	2803.52	13.21	-0.03	-105.66
	13:28:32	66.23	6.88	2823.85	11.10	-0.03	-106.65
	13:30:28	66.27	6.88	2831.44	8.58	-0.03	-107.59
	13:32:24	66.30	6.89	2843.13	8.34	-0.03	-108.45
Variance in last 3 readings	13:28:32	-0.04	0.01	20.33	-2.11	0.00	-0.99
	13:30:28	0.04	0.00	7.59	-2.52	0.00	-0.94
	13:32:24	0.03	0.00	11.69	-0.24	0.00	-0.86

Notes:



Troll 9000
02/21/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 76 [ft]
Pump placement from TOC 71 [ft]

Well Information:

Well Id PMA-MW-4D
Well diameter 2 [in]
Well total depth 73.35 [ft]
Depth to top of screen 68.5 [ft]
Screen length 60 [in]
Depth to Water 19.78 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 1023.73 [mL]
Calculated Sample Rate 154 [sec]
Sample rate 154 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
			+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	14:05:24	63.57	6.87	1862.63	43.88	0.00	-110.67
	14:07:59	63.64	6.87	1865.79	62.66	-0.01	-113.31
	14:10:35	63.39	6.87	1869.30	4.12	-0.01	-115.74
	14:13:10	63.65	6.87	1867.82	1.23	-0.02	-117.05
	14:15:45	63.49	6.87	1873.10	3.48	-0.03	-118.49
Variance in last 3 readings	14:10:35	-0.25	0.00	3.51	-58.54	0.00	-2.43
	14:13:10	0.26	0.00	-1.48	-2.90	-0.01	-1.31
	14:15:45	-0.16	0.00	5.28	2.25	-0.01	-1.44

Notes:



Troll 9000
02/18/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 60.37 [ft]
Pump placement from TOC 54.37 [ft]

Well Information:

Well Id PMA-MW-5M
Well diameter 2 [in]
Well total depth 57.02 [ft]
Depth to top of screen 51.87 [ft]
Screen length 60 [in]
Depth to Water 20.95 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 936.59 [mL]
Calculated Sample Rate 141 [sec]
Sample rate 141 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	14:40:49	62.17	7.45	2358.58	-0.35	-0.04	-86.57
	14:43:11	62.22	7.44	2378.54	-0.36	-0.05	-87.70
	14:45:33	62.27	7.44	2393.36	0.01	-0.06	-88.98
	14:47:55	62.26	7.43	2416.81	-0.27	-0.07	-90.47
	14:50:16	62.29	7.43	2426.99	-0.20	-0.07	-92.09
Variance in last 3 readings	14:45:33	0.05	0.00	14.83	0.37	-0.01	-1.27
	14:47:55	-0.01	-0.01	23.44	-0.28	-0.01	-1.49
	14:50:16	0.03	0.00	10.18	0.07	0.00	-1.62

Notes:



Troll 9000
02/19/14

Low-Flow System
ISI Low-Flow Log

Project Information:

Operator Name sj mc
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - PCB

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 104.68 [ft]
Pump placement from TOC 98.68 [ft]

Well Information:

Well Id PMA-MW-6D
Well diameter 2 [in]
Well total depth 101.34 [ft]
Depth to top of screen 96.18 [ft]
Screen length 60 [in]
Depth to Water 18.58 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 1183.64 [mL]
Calculated Sample Rate 178 [sec]
Sample rate 178 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

	Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	14:25:46	62.50	7.22	1093.13	4.24	0.06	-111.57
	14:28:45	62.54	7.22	1093.90	5.94	0.04	-113.95
	14:31:44	62.53	7.21	1093.59	18.11	0.02	-115.77
	14:34:44	62.47	7.21	1094.47	1.72	-0.01	-117.25
	14:37:44	62.52	7.21	1094.78	1.40	-0.01	-118.56
Variance in last 3 readings	14:31:44	0.00	0.00	-0.31	12.17	-0.02	-1.82
	14:34:44	-0.06	0.00	0.89	-16.39	-0.03	-1.48
	14:37:44	0.05	0.00	0.30	-0.31	-0.01	-1.31

Notes:

Appendix B

Chains-of-Custody

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

[illegible]

Chain of Custody Record

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 2/19/14		COC No:		
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: FedEx		1 of 1 COCs		
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Filtered Sample Total PCBs by 680		21563600.00002		SDG No.		
St. Louis, MO 63110		Calendar (C) or Work Days (W) ^C								
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>								
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								
Project Name: 1Q14 PCB GW Sampling										
Site: Solutia WG Krummrich Facility										
P O #										
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:			
PMA-MW-1S-0214	2/19/14	1040	G	Water	2	2				
PMA-MW-1M-0214	↓	1125	G	Water	2	2				
PMA-MW-2S-0214	↓	1240	G	Water	2	2				
PMA-MW-2M-0214	↓	1325	G	Water	2	2				
PMA-MW-2M-0214-AD	↓	1325	G	Water	2	2				
PMA-MW-6D-0214	↓	1445	G	Water	2	2				
PMA-MW-5M-0214 MC			G	Water	2	2	MC			
PMA-MW-1S-0214-MS	2/19/14	1040	G	Water	2	2				
PMA-MW-1S-0214-MSD	↓	1040	G	Water	2	2				
PMA-MW-2S-0214-EB	↓	1145	G	Water	2	2				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							1			
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements & Comments:										
3.2 ^{cc} 0.2 ^{cc} 4.6 ^{cc} 680-98812										
Relinquished by: <u>McK</u>		Company: URS		Date/Time: 2/19/14 1600		Received by: <u>McK</u>		Company: <u>URS</u>		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		



680-98812 Chain of Custody

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

[illegible]

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Page 12 of 14

Chain of Custody

2.8°C 680-98866

13 12 11 10 9 8 7 6 5 4 3 2 1

Appendix C

Quality Assurance Report

Solutia Inc.
W.G. Krummrich Facility
Sauget, Illinois

PCB Groundwater Quality
Assessment Program
1st Quarter 2014 Data Report

Prepared for

Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141

May 2014



URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21563600

1.0	INTRODUCTION	1
2.0	RECEIPT CONDITION AND SAMPLE HOLDING TIMES	3
3.0	LABORATORY METHOD AND EQUIPMENT BLANK SAMPLES	3
4.0	SURROGATE SPIKE RECOVERIES.....	4
5.0	LABORATORY CONTROL SAMPLE RECOVERIES	4
6.0	MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES.....	4
7.0	FIELD DUPLICATE RESULTS	5
8.0	INTERNAL STANDARD RESPONSES.....	5
9.0	RESULTS REPORTED FROM DILUTIONS.....	6

1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in February of 2014 at the Solutia W.G. Krummrich plant as part of the 1st Quarter 2014 PCB Groundwater Quality Assessment Program. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Samples were analyzed for polychlorinated biphenyls (PCBs).

One hundred percent of the data were subjected to a data quality review (Level III validation. The Level III validations were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use.

A total of 13 samples (ten investigative groundwater samples, one field duplicate, and one matrix spike and matrix spike duplicate (MS/MSD) pair) were analyzed by TestAmerica. Additionally, one equipment blank was collected and analyzed by Test America. These samples were analyzed as part of Sample Delivery Groups (SDGs) KPM054, KPM055, KPM056, and KPM057, utilizing the following USEPA Method:

- Method 680 for PCBs

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, (USEPA 2008) and the Revised PCB Groundwater Quality Assessment Work Plan, (Solutia 2009).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Data was qualified based on the data quality review. Qualifiers assigned indicate data that did not meet acceptance criteria and for which corrective actions were not successful or not performed. The various qualifiers are explained in **Tables 1** and **2** below:

TABLE 1 Laboratory Data Qualifiers

Lab Qualifier	Definition
U	Analyte was not detected at or above the reporting limit.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.
E	Result exceeded the calibration range, secondary dilution required.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

TABLE 2 URS Data Qualifiers

URS Qualifier	Definition
U	The analyte was analyzed for but was not detected.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined to be the percentage of analytical results which are judged to be valid, including estimated detect/nondetect (J/UJ) values was 100 percent, which meets the completeness goal of 95 percent.

The data review included evaluation of the following criteria:

Organics

- Data package completeness
- Laboratory case narrative/cooler receipt form and sample holding times
- Laboratory method blanks
- Laboratory control sample (LCS) recoveries
- Surrogate spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) sample recoveries and Relative Percent Difference (RPD) values
- Internal standard (IS) recoveries
- Laboratory duplicate results
- Field duplicate results
- Results reported from dilutions
- Additional qualifications

2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance.

The cooler receipt form for SDGs KPM054, KPM055, and KPM056 indicated that coolers were received by the laboratory at temperatures below the $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. All laboratory method blank samples were analyzed at the method prescribed frequencies. No analytes were detected in the method blanks.

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. No analytes were detected in the equipment blank.

4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. All samples analyzed for PCBs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Superfund Organic Methods Data Review state how data is qualified, if surrogate spike recoveries do not meet evaluation criteria. Surrogate recoveries were within evaluation criteria with the exception of those surrogates in data reviews discussed further in **Appendix D**.

Surrogates were diluted out and not recovered in PCB analysis of sample PMA-MW-4D-0214. No qualification of data was required.

5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. LCS recoveries were within evaluation criteria with the exception summarized in the table below.

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-316905/14-A	PCBs	Nonachlorobiphenyl	128	26-115

Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES

MS/MSD samples are analyzed to assess the accuracy and precision of the analytical process on an analytical sample in a particular matrix. MS/MSD samples were required to be collected at a frequency of one per 20 investigative samples in accordance with the work plan. URS Corporation submitted one MS/MSD sample set for ten investigative samples, meeting the work plan frequency requirement.

No qualifications were made to the data if the MS/MSD percent recoveries were zero due to dilutions or if the Relative Percent Difference (RPD) was the only factor outside of criteria. Also, USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008) states that organic data should not be qualified based on MS/MSD criteria alone. Therefore, if recoveries were outside evaluation criteria due to matrix interference or abundance of analytes, no qualifiers were assigned unless these analytes had other quality control criteria outside evaluation criteria.

Sample PMA-MW-1S-0214 was spiked and analyzed for PCBs. MS/MSD recoveries were within

evaluation criteria with the exception summarized in the following table.

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery	RPD	MS/MSD/RPD Criteria
PMA-MW-1S-0214-MS/MSD	PCBs	Nonachlorobiphenyl	120/114	6	26-115/40

Analytical data reported as non-detect and associated with MS/MSD recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within 2 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

One field duplicate sample was collected for the ten investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Field duplicate results were within evaluation criteria with the exception summarized in the following table.

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
PMA-MW-2M-0214	PMA-MW-2M-0214-AD	PCBs	Monochlorobiphenyl	41	J/J

8.0 INTERNAL STANDARD RESPONSES

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. For the PCBs (Method 680), the IS areas must be within +/- 30 percent of the preceding calibration verification (CV) IS value. Also, the IS retention times must be within 30 seconds of the preceding IS CV retention time. If the IS area count is outside criteria, Method 680 indicates the mean IS area obtained during the initial calibration (ICAL) (+/- 50 percent) should be used.

The internal standards area responses for PCBs were verified for the data review. IS responses met the criteria as described above with the exception summarized in the following table.

Sample ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMA-MW-4D-0214	PCBs	Phenanthrene-d ₁₀	54571	28954-53772
PMA-MW-4D-0214	PCBs	Chrysene-d ₁₀	70972	35223-65413

Analytical data that required qualification based on internal standard (IS) data are included in the table below. Analytical data reported as non-detect and associated with internal standard recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Sample ID	Parameter	Analyte	Qualification
PMA-MW-4D-0214	PCBs	Dichlorobiphenyl	J

9.0 RESULTS REPORTED FROM DILUTIONS

Field duplicate samples PMA-MW-2M-0214 and PMA-MW-2M-0214-AD, and sample PMA-MW-4D-0214 were diluted due to possible matrix interference. The diluted sample results for PCBs were reported at the lowest possible reporting limits.

Appendix D

Groundwater Analytical Results
(with Data Review Reports)

Solutia Krummrich Data Review

WGK PCB 1Q14

Laboratory SDG: KPM054

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 3/20/2014

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008

Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification
PMA-MW-5M-0214

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated LCS recovery for nonachlorobiphenyl was outside evaluation criteria. This issue is addressed further in the appropriate section below.

The cooler receipt form indicated that two of two coolers were received by the laboratory at temperatures of 0.2°C, and 0.8°C, which are outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-316905/14-A	PCBs	Nonachlorobiphenyl	128	26-115

Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

No

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; samples analyzed did not require dilution.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPM054

Results of Samples from Monitoring Well:

PMA-MW-5M

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-98750-1
TestAmerica Sample Delivery Group: KPM054
Client Project/Site: WGK PCB GW - 1Q14 - February 2014

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
3/20/2014 12:18:27 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

LINKS

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The
Expert**

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www.testamericainc.com

Reviewed on
MAR 20 2014 *nm*

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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MAR 20 2014
[Signature]

Case Narrative

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Job ID: 680-98750-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK PCB GW - 1Q14 - February 2014

Report Number: 680-98750-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 2/19/2014 9:36 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.2° C and 0.8° C.

POLYCHLORINATED BIPHENYLS (PCBS)

Sample PMA-MW-5M-0214 (680-98750-1) was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 02/24/2014 and analyzed on 03/13/2014.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 316905 recovered outside control limits for the following analytes: nonachlorobiphenyl. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Refer to the QC report for details.

No other difficulties were encountered during the PCBs analysis.

All other quality control parameters were within the acceptance limits.

MAR 20 2014



Sample Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-98750-1	PMA-MW-5M-0214	Water	02/18/14 14:55	02/19/14 09:36



MAR 20 2014
[Signature]
TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Method	Method Description	Protocol	Laboratory
680	Polychlorinated Biphenyls (PCBs) (GC/MS)	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014



TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054


Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
■	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

MAR 20 2014


TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Client Sample ID: PMA-MW-5M-0214

Lab Sample ID: 680-98750-1

Date Collected: 02/18/14 14:55

Matrix: Water

Date Received: 02/19/14 09:36

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/13/14 11:17	1
Dichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/13/14 11:17	1
Trichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/13/14 11:17	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 11:17	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 11:17	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 11:17	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/13/14 11:17	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/13/14 11:17	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		02/24/14 15:35	03/13/14 11:17	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		02/24/14 15:35	03/13/14 11:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	55		25 - 113	02/24/14 15:35	03/13/14 11:17	1

MAR 20 2014

TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Lab Sample ID: MB 680-316905/13-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	80		25 - 113	02/24/14 15:35	03/12/14 14:25	1

Lab Sample ID: LCS 680-316905/14-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Monochlorobiphenyl	2.00	1.07		ug/L		54	10 - 125
Dichlorobiphenyl	2.00	1.19		ug/L		60	10 - 110
Trichlorobiphenyl	2.00	1.31		ug/L		65	17 - 110
Tetrachlorobiphenyl	4.00	2.71		ug/L		68	18 - 110
Pentachlorobiphenyl	4.00	3.08		ug/L		77	34 - 110
Hexachlorobiphenyl	4.00	3.10		ug/L		77	31 - 110
Heptachlorobiphenyl	6.00	4.71		ug/L		78	33 - 110
Octachlorobiphenyl	6.00	4.88		ug/L		81	33 - 110
Nonachlorobiphenyl	10.0	12.8		ug/L		128	26 - 115
DCB Decachlorobiphenyl	10.0	7.68		ug/L		77	26 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Decachlorobiphenyl-13C12	77		25 - 113

MAR 20 2014

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

GC/MS Semi VOA

Prep Batch: 316905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98750-1	PMA-MW-5M-0214	Total/NA	Water	680	
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 319478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	316905
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	316905

Analysis Batch: 319607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98750-1	PMA-MW-5M-0214	Total/NA	Water	680	316905

MAR 20 2014

TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Client Sample ID: PMA-MW-5M-0214

Lab Sample ID: 680-98750-1

Date Collected: 02/18/14 14:55

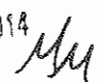
Matrix: Water

Date Received: 02/19/14 09:36

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1028.3 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1028.3 mL	1 mL	319607	03/13/14 11:17	NED	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014 

TestAmerica Savannah


Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
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TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		COC No:	
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: <u>Fed Ex</u>	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time				COC No: <u>1</u> of <u>1</u> COCs	
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>Standard</u>				21563600.00002	
(314) 429-0100 Phone		TAT if different from Below				SDG No.	
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks					
Project Name: 1Q14 PCB GW Sampling		<input type="checkbox"/> 1 week					
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days					
P O #		<input type="checkbox"/> 1 day					
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:
PMA-MW- <u>SM</u> -0214 ✓	2/18/14	1455	G	Water	2	2	
PMA-MW- -0214			G	Water	2	2	
PMA-MW- -0214			G	Water	2	2	
PMA-MW- -0214			G	Water	2	2	
PMA-MW- -0214			G	Water	2	2	
PMA-MW- -0214			G	Water	2	2	
							 680-98750 Chain of Custody
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							1
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Special Instructions/QC Requirements & Comments:							
0.2/0.8 ²							
Relinquished by: <u>[Signature]</u>	Company: URS	Date/Time: 2/18/14 1630	Received by: <u>[Signature]</u>	Company: TA SAV.	Date/Time: 02-19-14 0936		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:		

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-98750-1

SDG Number: KPM054

Login Number: 98750

List Source: TestAmerica Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98750-1
SDG: KPM054

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	06-30-14
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	04-17-14 *
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	LA100015	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	03-31-14 *
North Carolina DENR	State Program	4	269	12-31-14
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14 *
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia DEP	State Program	3	94	06-30-14
West Virginia DHHR	State Program	3	9950C	12-31-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

MAR 20 2014

Solutia Krummrich Data Review WGK PCB 1Q14

Laboratory SDG: KPM055

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 3/20/2014

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008

Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification	
PMA-MW-1S-0214	PMA-MW-1M-0214
PMA-MW-2S-0214	PMA-MW-2M-0214
PMA-MW-2M-0214-AD	PMA-MW-6D-0214
PMA-MW-2S-0214-EB	

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated LCS recovery for nonachlorobiphenyl was outside evaluation criteria. The MS recovery was outside evaluation criteria for the PCB nonachlorobiphenyl in sample PMA-MW-1S-0214. Monochlorobiphenyl was qualified due to field duplicate RPD outside evaluation criteria in field duplicate pair PMA-MW-2M-0214/PMA-MW-2M-0214-AD. Field duplicate samples PMA-MW-2M-0214 and PMA-MW-2M-0214-AD were diluted due to possible matrix interference. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that one of three coolers were received by the laboratory at a temperature of 0.2°C, which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-316905/14-A	PCBs	Nonachlorobiphenyl	128	26-115

Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

Yes, sample PMA-MW-1S-0214 was spiked and analyzed for PCBs.

Were MS/MSD recoveries within evaluation criteria?

No

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery	RPD	MS/MSD/RPD Criteria
PMA-MW-1S-0214-MS/MSD	PCBs	Nonachlorobiphenyl	120/114	6	26-115/40

Analytical data reported as non-detect and associated with MS/MSD recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Sample ID	Field Duplicate ID
PMA-MW-2M-0214	PMA-MW-2M-0214-AD

Were field duplicates within evaluation criteria?

No

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
PMA-MW-2M-0214	PMA-MW-2M-0214-AD	PCBs	Monochlorobiphenyl	41	J/J

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPM055

Results of Samples from Monitoring Wells:

PMA-MW-1S

PMA-MW-1M

PMA-MW-2S

PMA-MW-2M

PMA-MW-6D

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-98812-1
TestAmerica Sample Delivery Group: KPM055
Client Project/Site: WGK PCB GW - 1Q14 - February 2014

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
3/20/2014 12:22:04 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

LINKS

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The
Expert**

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www.testamericainc.com

Reviewed on
MAR 20 2014 *NM*

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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MAR 20 2014 *[Signature]*

Case Narrative

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Job ID: 680-98812-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK PCB GW - 1Q14 - February 2014

Report Number: 680-98812-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 2/20/2014 9:43 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 3.2° C and 4.6° C.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples PMA-MW-1S-0214 (680-98812-1), PMA-MW-1M-0214 (680-98812-2), PMA-MW-2S-0214 (680-98812-3), PMA-MW-2M-0214 (680-98812-4), PMA-MW-2M-0214-AD (680-98812-5), PMA-MW-6D-0214 (680-98812-6) and PMA-MW-2S-0214-EB (680-98812-7) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 02/24/2014 and analyzed on 03/12/2014, 03/13/2014 and 03/14/2014.


The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 316905 recovered outside control limits for the following analytes: nonachlorobiphenyl. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Refer to the QC report for details.

Samples PMA-MW-2M-0214 (680-98812-4)[2X] and PMA-MW-2M-0214-AD (680-98812-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the PCBs analysis.

All other quality control parameters were within the acceptance limits.


MAR 20 2014 

Sample Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-98812-1	PMA-MW-1S-0214 ✓	Water	02/19/14 10:40	02/20/14 09:43
680-98812-2	PMA-MW-1M-0214 ✓	Water	02/19/14 11:25	02/20/14 09:43
680-98812-3	PMA-MW-2S-0214 ✓	Water	02/19/14 12:40	02/20/14 09:43
680-98812-4	PMA-MW-2M-0214 ✓	Water	02/19/14 13:25	02/20/14 09:43
680-98812-5	PMA-MW-2M-0214-AD ✓	Water	02/19/14 13:25	02/20/14 09:43
680-98812-6	PMA-MW-6D-0214 ✓	Water	02/19/14 14:45	02/20/14 09:43
680-98812-7	PMA-MW-2S-0214-EB ✓	Water	02/19/14 11:45	02/20/14 09:43

MAR 20 2014 

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Method Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Method	Method Description	Protocol	Laboratory
680	Polychlorinated Biphenyls (PCBs) (GC/MS)	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014 *MM*

TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055


Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
•	LCS or LCSD exceeds the control limits
F1	MS and/or MSD Recovery exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

MAR 20 2014 

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-1S-0214

Lab Sample ID: 680-98812-1

Date Collected: 02/19/14 10:40

Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 16:51	1
Dichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 16:51	1
Trichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 16:51	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 16:51	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 16:51	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 16:51	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 16:51	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 16:51	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		02/24/14 15:35	03/12/14 16:51	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		02/24/14 15:35	03/12/14 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	71		25 - 113	02/24/14 15:35	03/12/14 16:51	1

MAR 20 2014 *U*

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-1M-0214

Lab Sample ID: 680-98812-2

Date Collected: 02/19/14 11:25

Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MOL	Unit	D	Prepared	Analyzed	Oil Fac
Monochlorobiphenyl	0.54		0.095		ug/L		02/24/14 15:35	03/13/14 02:32	1
Dichlorobiphenyl	0.095	U	0.095		ug/L		02/24/14 15:35	03/13/14 02:32	1
Trichlorobiphenyl	0.095	U	0.095		ug/L		02/24/14 15:35	03/13/14 02:32	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 02:32	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 02:32	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/13/14 02:32	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/13/14 02:32	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/13/14 02:32	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		02/24/14 15:35	03/13/14 02:32	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		02/24/14 15:35	03/13/14 02:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	63		25 - 113	02/24/14 15:35	03/13/14 02:32	1

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-2S-0214

Lab Sample ID: 680-98812-3


Date Collected: 02/19/14 12:40

Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.096	U	0.096		ug/L		02/24/14 15:35	03/12/14 17:49	1
Dichlorobiphenyl	0.096	U	0.096		ug/L		02/24/14 15:35	03/12/14 17:49	1
Trichlorobiphenyl	0.096	U	0.096		ug/L		02/24/14 15:35	03/12/14 17:49	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 17:49	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 17:49	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 17:49	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 17:49	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 17:49	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		02/24/14 15:35	03/12/14 17:49	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		02/24/14 15:35	03/12/14 17:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	62		25 - 113				02/24/14 15:35	03/12/14 17:49	1

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-2M-0214

Lab Sample ID: 680-98812-4

Date Collected: 02/19/14 13:25

Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	3.9	J	0.20		ug/L		02/24/14 15:35	03/13/14 14:11	2
Dichlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/13/14 14:11	2
Trichlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/13/14 14:11	2
Tetrachlorobiphenyl	0.40	U	0.40		ug/L		02/24/14 15:35	03/13/14 14:11	2
Pentachlorobiphenyl	0.40	U	0.40		ug/L		02/24/14 15:35	03/13/14 14:11	2
Hexachlorobiphenyl	0.40	U	0.40		ug/L		02/24/14 15:35	03/13/14 14:11	2
Heptachlorobiphenyl	0.59	U	0.59		ug/L		02/24/14 15:35	03/13/14 14:11	2
Octachlorobiphenyl	0.59	U	0.59		ug/L		02/24/14 15:35	03/13/14 14:11	2
Nonachlorobiphenyl	0.99	U*	0.99		ug/L		02/24/14 15:35	03/13/14 14:11	2
DCB Decachlorobiphenyl	0.99	U	0.99		ug/L		02/24/14 15:35	03/13/14 14:11	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	61		25 - 113	02/24/14 15:35	03/13/14 14:11	2

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-2M-0214-AD

Lab Sample ID: 680-98812-5

Date Collected: 02/19/14 13:25

Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	5.9	J	0.50		ug/L		02/24/14 15:35	03/14/14 10:00	5
Dichlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/14/14 10:00	5
Trichlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/14/14 10:00	5
Tetrachlorobiphenyl	1.0	U	1.0		ug/L		02/24/14 15:35	03/14/14 10:00	5
Pentachlorobiphenyl	1.0	U	1.0		ug/L		02/24/14 15:35	03/14/14 10:00	5
Hexachlorobiphenyl	1.0	U	1.0		ug/L		02/24/14 15:35	03/14/14 10:00	5
Heptachlorobiphenyl	1.5	U	1.5		ug/L		02/24/14 15:35	03/14/14 10:00	5
Octachlorobiphenyl	1.5	U	1.5		ug/L		02/24/14 15:35	03/14/14 10:00	5
Nonachlorobiphenyl	2.5	U *	2.5		ug/L		02/24/14 15:35	03/14/14 10:00	5
DCB Decachlorobiphenyl	2.5	U	2.5		ug/L		02/24/14 15:35	03/14/14 10:00	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	71		25 - 113	02/24/14 15:35	03/14/14 10:00	5

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-6D-0214

Lab Sample ID: 680-98812-6

Date Collected: 02/19/14 14:45


Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.23		0.10		ug/L		02/24/14 15:35	03/13/14 12:44	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/13/14 12:44	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/13/14 12:44	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/13/14 12:44	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/13/14 12:44	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/13/14 12:44	1
Heptachlorobiphenyl	0.31	U	0.31		ug/L		02/24/14 15:35	03/13/14 12:44	1
Octachlorobiphenyl	0.31	U	0.31		ug/L		02/24/14 15:35	03/13/14 12:44	1
Nonachlorobiphenyl	0.51	U *	0.51		ug/L		02/24/14 15:35	03/13/14 12:44	1
DCB Decachlorobiphenyl	0.51	U	0.51		ug/L		02/24/14 15:35	03/13/14 12:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	69		25 - 113	02/24/14 15:35	03/13/14 12:44	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-2S-0214-EB

Lab Sample ID: 680-98812-7

Date Collected: 02/19/14 11:45


Matrix: Water

Date Received: 02/20/14 09:43

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 19:45	1
Dichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 19:45	1
Trichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 19:45	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 19:45	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 19:45	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 19:45	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 19:45	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 19:45	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		02/24/14 15:35	03/12/14 19:45	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		02/24/14 15:35	03/12/14 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	74		25 - 113	02/24/14 15:35	03/12/14 19:45	1

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TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Lab Sample ID: MB 680-316905/13-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	80		25 - 113	02/24/14 15:35	03/12/14 14:25	1

Lab Sample ID: LCS 680-316905/14-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Monochlorobiphenyl	2.00	1.07		ug/L		54	10 - 125
Dichlorobiphenyl	2.00	1.19		ug/L		60	10 - 110
Trichlorobiphenyl	2.00	1.31		ug/L		65	17 - 110
Tetrachlorobiphenyl	4.00	2.71		ug/L		68	18 - 110
Pentachlorobiphenyl	4.00	3.08		ug/L		77	34 - 110
Hexachlorobiphenyl	4.00	3.10		ug/L		77	31 - 110
Heptachlorobiphenyl	6.00	4.71		ug/L		78	33 - 110
Octachlorobiphenyl	6.00	4.88		ug/L		81	33 - 110
Nonachlorobiphenyl	10.0	12.8 *		ug/L		128	26 - 115
DCB Decachlorobiphenyl	10.0	7.68		ug/L		77	26 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Decachlorobiphenyl-13C12	77		25 - 113

Lab Sample ID: 680-98812-1 MS
Matrix: Water
Analysis Batch: 319478

Client Sample ID: PMA-MW-1S-0214
Prep Type: Total/NA
Prep Batch: 316905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Monochlorobiphenyl	0.097	U	1.94	0.927		ug/L		48	10 - 125
Dichlorobiphenyl	0.097	U	1.94	1.04		ug/L		54	10 - 110
Trichlorobiphenyl	0.097	U	1.94	1.17		ug/L		60	17 - 110
Tetrachlorobiphenyl	0.19	U	3.89	2.40		ug/L		62	18 - 110
Pentachlorobiphenyl	0.19	U	3.89	2.85		ug/L		73	34 - 110
Hexachlorobiphenyl	0.19	U	3.89	2.89		ug/L		74	31 - 110
Heptachlorobiphenyl	0.29	U	5.83	4.35		ug/L		75	33 - 110
Octachlorobiphenyl	0.29	U	5.83	4.40		ug/L		75	33 - 110
Nonachlorobiphenyl	0.49	U *	9.72	11.7	F1	ug/L		120	26 - 115

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS) (Continued)

Lab Sample ID: 680-98812-1 MS

Matrix: Water

Analysis Batch: 319478

Client Sample ID: PMA-MW-1S-0214

Prep Type: Total/NA

Prep Batch: 316905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
DCB Decachlorobiphenyl	0.49	U	9.72	6.79		ug/L		70	26 - 115
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
Decachlorobiphenyl-13C12	73		25 - 113						

Lab Sample ID: 680-98812-1 MSD

Matrix: Water

Analysis Batch: 319478

Client Sample ID: PMA-MW-1S-0214

Prep Type: Total/NA

Prep Batch: 316905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Monochlorobiphenyl	0.097	U	1.93	0.956		ug/L		49	10 - 125	3	40
Dichlorobiphenyl	0.097	U	1.93	1.10		ug/L		57	10 - 110	5	40
Trichlorobiphenyl	0.097	U	1.93	1.20		ug/L		62	17 - 110	3	40
Tetrachlorobiphenyl	0.19	U	3.87	2.41		ug/L		62	18 - 110	0	40
Pentachlorobiphenyl	0.19	U	3.87	2.74		ug/L		71	34 - 110	4	40
Hexachlorobiphenyl	0.19	U	3.87	2.64		ug/L		68	31 - 110	9	40
Heptachlorobiphenyl	0.29	U	5.80	4.09		ug/L		70	33 - 110	6	40
Octachlorobiphenyl	0.29	U	5.80	4.16		ug/L		72	33 - 110	6	40
Nonachlorobiphenyl	0.49	U *	9.66	11.0		ug/L		114	26 - 115	6	40
DCB Decachlorobiphenyl	0.49	U	9.66	6.14		ug/L		64	26 - 115	10	40
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
Decachlorobiphenyl-13C12	69		25 - 113								

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

GC/MS Semi VOA

Prep Batch: 316905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98812-1	PMA-MW-1S-0214	Total/NA	Water	680	
680-98812-1 MS	PMA-MW-1S-0214	Total/NA	Water	680	
680-98812-1 MSD	PMA-MW-1S-0214	Total/NA	Water	680	
680-98812-2	PMA-MW-1M-0214	Total/NA	Water	680	
680-98812-3	PMA-MW-2S-0214	Total/NA	Water	680	
680-98812-4	PMA-MW-2M-0214	Total/NA	Water	680	
680-98812-5	PMA-MW-2M-0214-AD	Total/NA	Water	680	
680-98812-6	PMA-MW-6D-0214	Total/NA	Water	680	
680-98812-7	PMA-MW-2S-0214-EB	Total/NA	Water	680	
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 319478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98812-1	PMA-MW-1S-0214	Total/NA	Water	680	316905
680-98812-1 MS	PMA-MW-1S-0214	Total/NA	Water	680	316905
680-98812-1 MSD	PMA-MW-1S-0214	Total/NA	Water	680	316905
680-98812-3	PMA-MW-2S-0214	Total/NA	Water	680	316905
680-98812-7	PMA-MW-2S-0214-EB	Total/NA	Water	680	316905
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	316905
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	316905

Analysis Batch: 319518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98812-2	PMA-MW-1M-0214	Total/NA	Water	680	316905

Analysis Batch: 319607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98812-4	PMA-MW-2M-0214	Total/NA	Water	680	316905
680-98812-6	PMA-MW-6D-0214	Total/NA	Water	680	316905

Analysis Batch: 319674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98812-5	PMA-MW-2M-0214-AD	Total/NA	Water	680	316905

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-1S-0214

Lab Sample ID: 680-98812-1

Date Collected: 02/19/14 10:40

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1026.3 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1026.3 mL	1 mL	319478	03/12/14 16:51	NED	TAL SAV

Client Sample ID: PMA-MW-1M-0214

Lab Sample ID: 680-98812-2

Date Collected: 02/19/14 11:25

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1047.6 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1047.6 mL	1 mL	319518	03/13/14 02:32	NED	TAL SAV

Client Sample ID: PMA-MW-2S-0214

Lab Sample ID: 680-98812-3

Date Collected: 02/19/14 12:40

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1039.1 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1039.1 mL	1 mL	319478	03/12/14 17:49	NED	TAL SAV

Client Sample ID: PMA-MW-2M-0214

Lab Sample ID: 680-98812-4

Date Collected: 02/19/14 13:25

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1009.8 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		2	1009.8 mL	1 mL	319607	03/13/14 14:11	NED	TAL SAV

Client Sample ID: PMA-MW-2M-0214-AD

Lab Sample ID: 680-98812-5

Date Collected: 02/19/14 13:25

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1000.6 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		5	1000.6 mL	1 mL	319674	03/14/14 10:00	NED	TAL SAV

Client Sample ID: PMA-MW-6D-0214

Lab Sample ID: 680-98812-6

Date Collected: 02/19/14 14:45

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			980.9 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	980.9 mL	1 mL	319607	03/13/14 12:44	NED	TAL SAV

TestAmerica Savannah

MAR 20 2014

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Client Sample ID: PMA-MW-2S-0214-EB

Lab Sample ID: 680-98812-7

Date Collected: 02/19/14 11:45

Matrix: Water

Date Received: 02/20/14 09:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1030.9 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1030.9 mL	1 mL	319478	03/12/14 19:45	NED	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

MAR 20 2014

Savannah
5102 LaRoeche Avenue

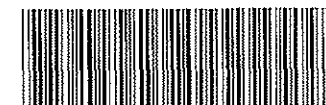
Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 2/19/14		COC No:	
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: <u>Fed Ex</u>		1 of 1 COCs	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Filtered Sample: Total PCBs by 680				21563600.00002	
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>							
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>							
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks							
Project Name: 1Q14 PCB GW Sampling		<input type="checkbox"/> 1 week							
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days						SDG No.	
P O #		<input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:		
PMA-MW-1S-0214 ✓	2/19/14	1040	G	Water	2	2			
PMA-MW-1M-0214 ✓		1125	G	Water	2	2			
PMA-MW-2S-0214 ✓		1240	G	Water	2	2			
PMA-MW-2M-0214 ✓		1325	G	Water	2	2			
PMA-MW-2M-0214-AD ✓		1325	G	Water	2	2			
PMA-MW-6D-0214 ✓	✓	1445	G	Water	2	2			
PMA-MW-5M-0214 MC			G	Water	2	2	MC		
PMA-MW-1S-0214-MS	2/19/14	1040	G	Water	2	2			
PMA-MW-1S-0214-MSD		1040	G	Water	2	2			
PMA-MW-2S-0214-EB ✓	✓	1145	G	Water	2	2			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							1		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Special Instructions/QC Requirements & Comments: <div style="text-align: center;">3.2^oC 0.2^oC 4.6^oC 680-98812</div>									
Relinquished by: <u>[Signature]</u>	Company: URS	Date/Time: 2/19/14 1600	Received by: <u>[Signature]</u>	Company: <u>[Signature]</u>	Date/Time: 2/20/14 09:43				
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:				
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:				



680-98812 Chain of Custody

MAR 20 2014

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-98812-1

SDG Number: KPM055

Login Number: 98812

List Source: TestAmerica Savannah

List Number: 1

Creator: Kicklighter, Marilyn D

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98812-1
SDG: KPM055

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	06-30-14
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	04-17-14 *
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	LA100015	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	03-31-14 *
North Carolina DENR	State Program	4	269	12-31-14
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14 *
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia DEP	State Program	3	94	06-30-14
West Virginia DHHR	State Program	3	9950C	12-31-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

MAR 20 2014

Solutia Krummrich Data Review

WGK PCB 1Q14

Laboratory SDG: KPM056

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 3/20/2014

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008

Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification	
PMA-MW-3S-0214	PMA-MW-3M-0214

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated LCS recovery for nonachlorobiphenyl was outside evaluation criteria. This issue is addressed further in the appropriate section below.

The cooler receipt form indicated that one of one coolers were received by the laboratory at a temperature of 0.8°C, which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-316905/14-A	PCBs	Nonachlorobiphenyl	128	26-115

Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

No

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; samples analyzed did not require dilution.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPM056

Results of Samples from Monitoring Wells:

PMA-MW-3S

PMA-MW-3M

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-98835-1
TestAmerica Sample Delivery Group: KPM056
Client Project/Site: WGK PCB GW - 1Q14 - February 2014

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
3/20/2014 12:24:24 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

LINKS

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www.testamericainc.com

Reviewed on
MAR 20 2014 *MM*

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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MAR 20 2014 *[Signature]*

Case Narrative

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Job ID: 680-98835-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK PCB GW - 1Q14 - February 2014

Report Number: 680-98835-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 2/21/2014 9:26 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

POLYCHLORINATED BIPHENYLS (PCBS)


Samples PMA-MW-3S-0214 (680-98835-1) and PMA-MW-3M-0214 (680-98835-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 02/24/2014 and analyzed on 03/12/2014.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 316905 recovered outside control limits for the following analytes: nonachlorobiphenyl. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Refer to the QC report for details.

No other difficulties were encountered during the PCBs analysis.

All other quality control parameters were within the acceptance limits.

MAR 20 2014 

Sample Summary


Client: Solutia Inc.

Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1

SDG: KPM056

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-98835-1	PMA-MW-3S-0214	Water	02/20/14 14:20	02/21/14 09:26
680-98835-2	PMA-MW-3M-0214	Water	02/20/14 15:00	02/21/14 09:26

MAR 20 2014 

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056


Method	Method Description	Protocol	Laboratory
680	Polychlorinated Biphenyls (PCBs) (GC/MS)	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014 

TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

MAR 20 2014

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Client Sample ID: PMA-MW-3S-0214

Lab Sample ID: 680-98835-1

Date Collected: 02/20/14 14:20

Matrix: Water

Date Received: 02/21/14 09:26

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.36		0.097		ug/L		02/24/14 15:35	03/12/14 20:14	1
Dichlorobiphenyl	0.12		0.097		ug/L		02/24/14 15:35	03/12/14 20:14	1
Trichlorobiphenyl	0.097	U	0.097		ug/L		02/24/14 15:35	03/12/14 20:14	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 20:14	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 20:14	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		02/24/14 15:35	03/12/14 20:14	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 20:14	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		02/24/14 15:35	03/12/14 20:14	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		02/24/14 15:35	03/12/14 20:14	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		02/24/14 15:35	03/12/14 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	69		25 - 113				02/24/14 15:35	03/12/14 20:14	1

MAR 20 2014

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Client Sample ID: PMA-MW-3M-0214

Lab Sample ID: 680-98835-2


Date Collected: 02/20/14 15:00

Matrix: Water

Date Received: 02/21/14 09:26

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.72		0.099		ug/L		02/24/14 15:35	03/12/14 20:43	1
Dichlorobiphenyl	0.099	U	0.099		ug/L		02/24/14 15:35	03/12/14 20:43	1
Trichlorobiphenyl	0.099	U	0.099		ug/L		02/24/14 15:35	03/12/14 20:43	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 20:43	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 20:43	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 20:43	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 20:43	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 20:43	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		02/24/14 15:35	03/12/14 20:43	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		02/24/14 15:35	03/12/14 20:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	63		25 - 113				02/24/14 15:35	03/12/14 20:43	1

MAR 20 2014 

TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Lab Sample ID: MB 680-316905/13-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	80		25 - 113	02/24/14 15:35	03/12/14 14:25	1

Lab Sample ID: LCS 680-316905/14-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Monochlorobiphenyl	2.00	1.07		ug/L		54	10 - 125
Dichlorobiphenyl	2.00	1.19		ug/L		60	10 - 110
Trichlorobiphenyl	2.00	1.31		ug/L		65	17 - 110
Tetrachlorobiphenyl	4.00	2.71		ug/L		68	18 - 110
Pentachlorobiphenyl	4.00	3.08		ug/L		77	34 - 110
Hexachlorobiphenyl	4.00	3.10		ug/L		77	31 - 110
Heptachlorobiphenyl	6.00	4.71		ug/L		78	33 - 110
Octachlorobiphenyl	6.00	4.88		ug/L		81	33 - 110
Nonachlorobiphenyl	10.0	12.8	*	ug/L		128	26 - 115
DCB Decachlorobiphenyl	10.0	7.68		ug/L		77	26 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Decachlorobiphenyl-13C12	77		25 - 113

MAR 20 2014

TestAmerica Savannah

QC Association Summary

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

GC/MS Semi VOA

Prep Batch: 316905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98835-1	PMA-MW-3S-0214	Total/NA	Water	680	
680-98835-2	PMA-MW-3M-0214	Total/NA	Water	680	
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 319478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98835-1	PMA-MW-3S-0214	Total/NA	Water	680	316905
680-98835-2	PMA-MW-3M-0214	Total/NA	Water	680	316905
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	316905
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	316905

MAR 20 2014

TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Client Sample ID: PMA-MW-3S-0214

Lab Sample ID: 680-98835-1

Date Collected: 02/20/14 14:20

Matrix: Water

Date Received: 02/21/14 09:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1032.7 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1032.7 mL	1 mL	319478	03/12/14 20:14	NED	TAL SAV

Client Sample ID: PMA-MW-3M-0214

Lab Sample ID: 680-98835-2

Date Collected: 02/20/14 15:00

Matrix: Water

Date Received: 02/21/14 09:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1011.5 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1011.5 mL	1 mL	319478	03/12/14 20:43	NED	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014

TestAmerica Savannah

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

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[illegible]

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-98835-1

SDG Number: KPM056

Login Number: 98835

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98835-1
SDG: KPM056

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	06-30-14
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	04-17-14 *
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	LA100015	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	03-31-14 *
North Carolina DENR	State Program	4	269	12-31-14
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14 *
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia DEP	State Program	3	94	06-30-14
West Virginia DHHR	State Program	3	9950C	12-31-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

MAR 20 2014

Solutia Krummrich Data Review

WGK PCB 1Q14

Laboratory SDG: KPM057

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 3/20/2014

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008

Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification	
PMA-MW-4S-0214	PMA-MW-4D-0214

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated LCS recovery for nonachlorobiphenyl was outside evaluation criteria. Surrogates were diluted out and not recovered in the PCB analysis of sample PMA-MW-4D-0214. Internal standard recoveries for phenanthrene-d₁₀ and chrysene-d₁₂ were outside evaluation criteria in sample PMA-MW-4D-0214. Sample PMA-MW-4D-0214 was diluted due to possible matrix interference. These issues are addressed further in the appropriate sections below.

The cooler receipt form did not indicate any problems.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-316905/14-A	PCBs	Nonachlorobiphenyl	128	26-115

Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. No qualification of data was required.

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Surrogates were diluted out and not recovered in the PCB analysis of sample PMA-MW-4D-0214. No qualification of data is required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

No

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Sample ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMA-MW-4D-0214	PCBs	Phenanthrene-d ₁₀	54571	28954-53772
PMA-MW-4D-0214	PCBs	Chrysene-d ₁₀	70972	35223-65413

Analytical data that required qualification based on internal standard (IS) data are included in the table below. Analytical data reported as non-detect and associated with internal standard recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Sample ID	Parameter	Analyte	Qualification
PMA-MW-4D-0214	PCBs	Dichlorobiphenyl	J

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples performed as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPM057

Results of Samples from Monitoring Wells:

PMA-MW-4S

PMA-MW-4D

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-98866-1
TestAmerica Sample Delivery Group: KPM057
Client Project/Site: WGK PCB GW - 1Q14 - February 2014

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
3/20/2014 12:26:55 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

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Reviewed on
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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Job ID: 680-98866-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK PCB GW - 1Q14 - February 2014

Report Number: 680-98866-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 2/22/2014 9:42 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8° C.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples PMA-MW-4S-0214 (680-98866-1) and PMA-MW-4D-0214 (680-98866-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 02/24/2014 and analyzed on 03/12/2014 and 03/13/2014.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 316905 recovered outside control limits for the following analytes: nonachlorobiphenyl. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Internal standard (ISTD) response for the following sample(s) was outside of acceptance limits when compared to the area of the CCVIS(continuing calibration verification internal standard): 680-98866-a-2-a. The 680 method allows that the sample also be compared to the average internal standard area of the calibration (ICISAV). Due to limitations in the software, when the areas of the sample are out of control for either the CCVIS or the ICISAV both are flagged. Although a * flag appears on the Form 8 for the ICISAV, the sample is within range for Chrysene-d12.

Refer to the QC report for details.

Sample PMA-MW-4D-0214 (680-98866-2)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the PCBs analysis.

All other quality control parameters were within the acceptance limits.

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Sample Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-98866-1	PMA-MW-4S-0214	Water	02/21/14 13:40	02/22/14 09:42
680-98866-2	PMA-MW-4D-0214	Water	02/21/14 14:20	02/22/14 09:42

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Method Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057


Method	Method Description	Protocol	Laboratory
680	Polychlorinated Biphenyls (PCBs) (GC/MS)	EPA	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057


Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits
*	ISTD response or retention time outside acceptable limits
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

MAR 20 2014 

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Client Sample ID: PMA-MW-4S-0214

Lab Sample ID: 680-98866-1

Date Collected: 02/21/14 13:40


Matrix: Water

Date Received: 02/22/14 09:42

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	1.9		0.096		ug/L		02/24/14 15:35	03/12/14 21:12	1
Dichlorobiphenyl	7.4		0.096		ug/L		02/24/14 15:35	03/12/14 21:12	1
Trichlorobiphenyl	14		0.096		ug/L		02/24/14 15:35	03/12/14 21:12	1
Tetrachlorobiphenyl	16		0.19		ug/L		02/24/14 15:35	03/12/14 21:12	1
Pentachlorobiphenyl	8.2		0.19		ug/L		02/24/14 15:35	03/12/14 21:12	1
Hexachlorobiphenyl	9.2		0.19		ug/L		02/24/14 15:35	03/12/14 21:12	1
Heptachlorobiphenyl	7.8		0.29		ug/L		02/24/14 15:35	03/12/14 21:12	1
Octachlorobiphenyl	1.2		0.29		ug/L		02/24/14 15:35	03/12/14 21:12	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		02/24/14 15:35	03/12/14 21:12	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		02/24/14 15:35	03/12/14 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	59		25 - 113	02/24/14 15:35	03/12/14 21:12	1

MAR 20 2014 

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WCK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Client Sample ID: PMA-MW-4D-0214

Lab Sample ID: 680-98866-2

Date Collected: 02/21/14 14:20

Matrix: Water

Date Received: 02/22/14 09:42

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.98	U*	0.98		ug/L		02/24/14 15:35	03/13/14 13:13	10
Dichlorobiphenyl	1.5	U*	0.98		ug/L		02/24/14 15:35	03/13/14 13:13	10
Trichlorobiphenyl	0.98	U*	0.98		ug/L		02/24/14 15:35	03/13/14 13:13	10
Tetrachlorobiphenyl	2.0	U*	2.0		ug/L		02/24/14 15:35	03/13/14 13:13	10
Pentachlorobiphenyl	2.0	U*	2.0		ug/L		02/24/14 15:35	03/13/14 13:13	10
Hexachlorobiphenyl	2.0	U*	2.0		ug/L		02/24/14 15:35	03/13/14 13:13	10
Heptachlorobiphenyl	2.9	U*	2.9		ug/L		02/24/14 15:35	03/13/14 13:13	10
Octachlorobiphenyl	2.9	U*	2.9		ug/L		02/24/14 15:35	03/13/14 13:13	10
Nonachlorobiphenyl	4.9	U*	4.9		ug/L		02/24/14 15:35	03/13/14 13:13	10
DCB Decachlorobiphenyl	4.9	U*	4.9		ug/L		02/24/14 15:35	03/13/14 13:13	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	0	D	25 - 113	02/24/14 15:35	03/13/14 13:13	10

MAR 20 2014

TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Lab Sample ID: MB 680-316905/13-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316905

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Monochlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		02/24/14 15:35	03/12/14 14:25	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		02/24/14 15:35	03/12/14 14:25	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		02/24/14 15:35	03/12/14 14:25	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		02/24/14 15:35	03/12/14 14:25	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Decachlorobiphenyl-13C12	80		25 - 113	02/24/14 15:35	03/12/14 14:25	1

Lab Sample ID: LCS 680-316905/14-A
Matrix: Water
Analysis Batch: 319478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316905

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Monochlorobiphenyl	2.00	1.07		ug/L		54	10 - 125
Dichlorobiphenyl	2.00	1.19		ug/L		60	10 - 110
Trichlorobiphenyl	2.00	1.31		ug/L		65	17 - 110
Tetrachlorobiphenyl	4.00	2.71		ug/L		68	18 - 110
Pentachlorobiphenyl	4.00	3.08		ug/L		77	34 - 110
Hexachlorobiphenyl	4.00	3.10		ug/L		77	31 - 110
Heptachlorobiphenyl	6.00	4.71		ug/L		78	33 - 110
Octachlorobiphenyl	6.00	4.88		ug/L		81	33 - 110
Nonachlorobiphenyl	10.0	12.8	*	ug/L		128	26 - 115
DCB Decachlorobiphenyl	10.0	7.68		ug/L		77	26 - 115

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Decachlorobiphenyl-13C12	77		25 - 113

MAR 20 2014

TestAmerica Savannah

QC Association Summary

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

GC/MS Semi VOA

Prep Batch: 316905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98866-1	PMA-MW-4S-0214	Total/NA	Water	680	
680-98866-2	PMA-MW-4D-0214	Total/NA	Water	680	
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 319478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98866-1	PMA-MW-4S-0214	Total/NA	Water	680	316905
LCS 680-316905/14-A	Lab Control Sample	Total/NA	Water	680	316905
MB 680-316905/13-A	Method Blank	Total/NA	Water	680	316905

Analysis Batch: 319607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-98866-2	PMA-MW-4D-0214	Total/NA	Water	680	316905

MAR 20 2014



TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Client Sample ID: PMA-MW-4S-0214

Lab Sample ID: 680-98866-1

Date Collected: 02/21/14 13:40

Matrix: Water

Date Received: 02/22/14 09:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1040.4 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		1	1040.4 mL	1 mL	319478	03/12/14 21:12	NED	TAL SAV

Client Sample ID: PMA-MW-4D-0214

Lab Sample ID: 680-98866-2

Date Collected: 02/21/14 14:20

Matrix: Water

Date Received: 02/22/14 09:42

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1019.1 mL	1 mL	316905	02/24/14 15:35	RBS	TAL SAV
Total/NA	Analysis	680		10	1019.1 mL	1 mL	319607	03/13/14 13:13	NED	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

MAR 20 2014

TestAmerica Savannah

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 2/21/14		COC No:	
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: FedEx		1 of 1 COCs	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						21563600.00002	
St. Louis, MO 63110		Calendar (C) or Work Days (W) Standard						SDG No.	
(314) 429-0100 Phone		TAT if different from Below							
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks							
Project Name: 1Q14 PCB GW Sampling		<input type="checkbox"/> 1 week							
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days							
P O #		<input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Total PCBs by 680	Sample Specific Notes:
PMA-MW- 4S -0214	2/21/14	1340	G	Water	2	2			
PMA-MW- 4D -0214	2/21/14	1420	G	Water	2	2			
PMA-MW- -0214			G	Water	2	2			
PMA-MW- -0214			G	Water	2	2			
PMA-MW- -0214			G	Water	2	2			
PMA-MW- -0214			G	Water	2	2			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other		1							
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Special Instructions/QC Requirements & Comments:									
Relinquished by: [Signature]		Company: URS	Date/Time: 2/21/14 1500	Received by:	Company:	Date/Time:	2.8°C 680-98866		
Relinquished by:		Company:	Date/Time:	Received by:	Company:	Date/Time:			
Relinquished by:		Company:	Date/Time:	Received by: [Signature]	Company: TA Saw	Date/Time: 02/22/14 0942			

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-98866-1

SDG Number: KPM057

Login Number: 98866

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: W GK PCB GW - 1Q14 - February 2014

TestAmerica Job ID: 680-98866-1
SDG: KPM057

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	86-0692	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	06-30-14
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	04-17-14 *
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	900B4	12-31-14
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	LA100015	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	03-31-14 *
North Carolina DENR	State Program	4	269	12-31-14
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14 *
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia DEP	State Program	3	94	06-30-14
West Virginia DHHR	State Program	3	9950C	12-31-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	BTMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

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